Executive Summary Chandalar River Sonar.

FIS 03-014: Enumeration of Fall Chum Salmon using Split-beam sonar in the Chandalar River, Alaska, 2003 - 2005

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Geographic Area: Yukon River/Yukon Flats

Issue: Enumeration data will be collected for fall chum salmon in the Chandalar River to assist fishery managers with in season management and to assess escapement of fall chum salmon. Accurate salmon escapement counts within the Yukon River drainage are important in addressing the issues raised by the Regional Advisory Councils and identified in the Yukon River comprehensive Management Plan for Alaska. Continuance of this project is important not only for assessing the annual harvest management guidelines, and predicting run strength, but also for monitoring long-term population trends

Objectives:
1) Provide daily in-season counts of Chandalar River fall chum salmon *Oncorhynchus keta* to fishery managers;
2) Estimate annual spawning escapement;
3) Describe annual variability in run size and timing; and
4) Refine the ability of sonar operators to recognize the sonar trace signatures of non-salmon species.

Methods: A fixed-location, split-beam hydro acoustics system will be installed to monitor the upstream migration of adult fall chum salmon in the Chandalar River. Systems will be installed on opposite river banks to optimize sonar beam coverage of the river cross-sectional area. The sonar will be operated continuously, 24hr per day, from August 8 to September 26 (except for short periods of maintenance, or during high water events). This project is highly specialized and technical; all counts are derived from manually tracking/analyzing hourly data files using target tracking software. Technicians will interpret and manage the sonar data before sending a daily count to managers.

Recently a more focused evaluation of the presence of least cisco and other non-salmon species and their potential impact on sonar counts has been undertaken. This has led to the addition of several new components to the project. These include: a beach seining program, deployment of an array of underwater video cameras and video recording equipment, and a radiotelemetry project concentrating on the presence of least cisco.

Products: The Fairbanks Fishery Resource Office will prepare a yearly draft progress report due June 15, and a final technical report due August 15.

Experience of Investigators: Mr. Osborne is a fishery biologist with the U.S. Fish and Wildlife - Fairbanks Fishery Resource Office (USFWS-FFRO). He started his sonar experience during 1992 in the joint effort between the Fish & Wildlife Service, Hydro acoustic Technology, Inc, and the Alaska Department of Fish & Game on the Yukon River Sonar feasibility project conducted on the main stem of the Yukon River near the U.S. Canadian Border. Since 1994 he has been involved with the sonar operation on the Chandalar River counting fall chum salmon which started out as a feasibility study of a new split beam sonar system, transducer placement, conducted in-situ calibrations, acquired acoustic fish target data, and conducted gill netting operations for species apportionment. Jeff Melegari is a fisheries biologist with USFWS-FFRO He has been involved in salmon escapement enumeration projects since 1994 and has been working on the Chandalar sonar project since 2000

Partnerships/Collaborations: The project in the past has contracted with residents from Fort Yukon and Venetie for logistics support and will continue to pursue that endeavor. As sonar technology develops, there will be good opportunities to build capacity with the Village of Venetie. This could include hiring local residents to operate or maintain equipment or other components of the project. Additionally a MOU between the United States Army Alaska (4-123 Aviation Battalion) and the U.S. Fish and Wildlife Service (Fishery Resource Office) to transport camp equipment and supplies will be in place.

Budget:
Total Project Costs:

	Federal
FY2003	$70,000
FY2004	$73,500
FY2005	$77,175
Total	$220,675